

19981129.ba v02_n323.bam.981129

>From ???@??? Sun Nov 29 12:39:15 1998
Message-Id: <199811291627.KAA08876@sco.theporch.com>
Date: Sun, 29 Nov 1998 10:26:42 CST
Subject: BOATANCHORS digest 2323

BOATANCHORS Digest 2323

Topics covered in this issue include:

- 1) RE: Inductance of Ohmite Z-50 and Z-144 chokes?
by "David Newkirk" <dpnewkirk@home.com>
- 2) RE: Tar in the hair
by "David Newkirk" <dpnewkirk@home.com>
- 3) TEST METER ID HELP
by "ROBERT W. DOWNS" <RWDowns_WA5CAB@compuserve.com>
- 4) W.M.C. CDN No. 1
by Andre Guibert <aguibert@sympatico.ca>
- 5) Collins For Sale
by Glenn Finerman <glennfin@mjet.com>
- 6) Re: Tektronix terminal strips
by "Benjamin D. Hall" <kd5byb@WT.NET>
- 7) plug needed
by "Benjamin D. Hall" <kd5byb@WT.NET>
- 8) RE: BC-611 Nameplate
by "ROBERT W. DOWNS" <RWDowns_WA5CAB@compuserve.com>
- 9) Collins For Sale
by Glenn Finerman <glennfin@mjet.com>
- 10) Re: Tek terminal strips & alternatives
by Ed Tanton <n4xy@att.net>
- 11) Re: Tektronix terminal strips
by "Steve" <scb@mail.internettport.net>
- 12) Re: Tektronix terminal strips
by Bill Hawkins <bill@iaxs.net>
- 13) Re: Tek strips / Ag migration
by polepeeg@aa4rm.ba-watch.org (Marty's Refl. Drop)
- 14) Re: Tektronix terminal strips
by Jim Garland W8ZR <4CX250B@miavx1.acs.muohio.edu>
- 15) Re: Nat'l FB-7 RX - AWA '29 TX test
by polepeeg@aa4rm.ba-watch.org (Marty's Refl. Drop)
- 16) BOATANCHORS digest 2322
by Mike Warren <m_warren@compuserve.com>
- 17) Re: Nat'l FB-7 RX - AWA '29 TX test
by "Mike B. Feher" <n4fs@monmouth.com>
- 18) Re: Tektronix terminal strips
by Bill Hawkins <bill@iaxs.net>
- 19) Re: Tektronix terminal strips

by "Arden Allen" <gumbear@pacbell.net>
20) Re: Tektronix terminal strips
by "Arden Allen" <gumbear@pacbell.net>
21) Re: Tektronix terminal strips
by "Arden Allen" <gumbear@pacbell.net>
22) Re: Tek strips / Ag migration
by "Arden Allen" <gumbear@pacbell.net>

From: "David Newkirk" <dpnewkirk@home.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: Inductance of Ohmite Z-50 and Z-144 chokes?
Date: Sat, 28 Nov 1998 20:53:22 -0500
Message-ID: <000001be1b3b\$0c049580\$33940318@cc632587-a.vron1.nj.home.com>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Jim Garland wrote:

> The Ohmite Z-50 and Z-144 RF chokes -- anybody know what their inductance is?

>From the 1959 Allied Radio catalog:

Z-460: 0.2 uH, 1000 mA, 320-520 Mc.
Z-235: 0.84 uH, 1000 mA, 160-350 Mc.
Z-144: 1.8 uH, 1000 mA, 80-200 Mc.
Z-50: 7.0 uH, 1000 mA, 35-110 Mc.
Z-28: 21 uH, 600 mA, 20-60 Mc.
Z-14: 44 uH, 600 mA, 7-35 Mc.
Z-7: 84 uH, 1000 mA, 35-110 Mc.

73,

Dave Newkirk, W9VES
dpnewkirk@home.com
** want list: R-648 **

From: "David Newkirk" <dpnewkirk@home.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: Tar in the hair
Date: Sat, 28 Nov 1998 20:55:45 -0500
Message-ID: <000101be1b3b\$61222280\$33940318@cc632587-a.vron1.nj.home.com>
MIME-Version: 1.0
Content-Type: text/plain;

charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Art, K3HBA, wrote:

> >my previous post) I got some pine-tar (sap) in my hair today while trying
> >for more height.... anybody got any good ideas for getting it out (other
> >than just getting out the scissors?-- my WIFE thought of that already!)?.

Cooking oil should work as a solvent, then use soap or detergent and water
to remove the cooking oil and suspended pine sap.

73,

Dave Newkirk, W9VES
dpnewkirk@home.com
** want list: R-648 **

Date: Sat, 28 Nov 1998 21:38:16 -0500
From: "ROBERT W. DOWNS" <RWDDowns_WA5CAB@compuserve.com>
Subject: TEST METER ID HELP
To: Old Tube Radios <boatanchors@theporch.com>
Message-ID: <199811282138_MC2-61C9-F60@compuserve.com>
MIME-Version: 1.0
Content-Transfer-Encoding: quoted-printable
Content-Type: text/plain; charset=ISO-8859-1
Content-Disposition: inline

Group,

I have a small test meter which I think arrived with some orther green ge=
ar
that I need help identifying. It is a bakelite cube 1-3/4" on a side. T=
he
meter has a 0-10 scale with the even numbered divisions labeled. There i=
s
a red bar covering about 4.5-5.5. Below the scale are the words "DIRECT
CURRENT" and below that "FS=3D2 MA, 20 MV". A black 2-conductor cord abo=
ut
26" long runs out of the right side of the case, and is terminated in a
PL-68. The only other markings are an M.F.P stamp on the rear of the cas=
e.

73,
Robert Downs
WA5CAB

Date: Sat, 28 Nov 1998 22:03:57 -0500 (EST)
Message-Id: <199811290303.WAA27623@smtp13.bellglobal.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Andre Guibert <aguibert@sympatico.ca>
Subject: W.M.C. CDN No. 1

Bonsoir Robert and All
Been using these remote as I/C between house and barn
at a few neighboring farms.
Used one pair for my daughter to talk to a neighbor friend,
then we could have the use of the regular phone in the
city.
Ours had a magneto ringer, a Morse key, headphones and
mic. with the big WS19 plug.
Andre

>Da

te: Sat, 28 Nov 1998 10:25:47 -0500
>a Wireless Remote Control Unit Canadian No. 1
>complete with manual, shoulder strap, headset and
>hand microphone. This is, according to the TM,
>the remote for the No. 19 set,

Message-Id: <Version.32.19981127161459.00e21da0@mjet.com>
Date: Sat, 28 Nov 1998 22:47:24 -0500
To: Old Tube Radios <boatanchors@theporch.com>
From: Glenn Finerman <glennfin@mjet.com>
Subject: Collins For Sale
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Have to make room again. Here are some items I am offering
for sale. All prices INCLUDE (careful) double box packing and
shipping via UPS.

Collins 75A-4 receiver. w/ 4 filters (500hz, 1.5kc, 3.1kc, 6kc) and
4:1 spinner knob. Original - no holes or mods. Very close to perfect,
a real beauty!. Tested - working, with original manual and "Modification
compendium" (from E.R.). \$1100

Collins S-Line. 75S3-B (R.E.), 32S-3 (W.E.), 516F-2 (W.E.), 312B-4 (W.E.). All excellent condition, tested - working. With original manuals and Hi-res video tape set. Shipped in three seperate packages. \$1200

Collins 32S-1 Transmitter. With 516F-2 supply (no case). Very clean, tested - working. w/ original manual. \$375

73.....Glenn Finerman K2KL

glennfin@mjet.com

Message-Id: <3.0.32.19981128221102.007c15d0@mail.wt.net>
Date: Sat, 28 Nov 1998 22:13:14 -0600
To: Old Tube Radios <boatanchors@theporch.com>
From: "Benjamin D. Hall" <kd5byb@WT.NET>
Subject: Re: Tektronix terminal strips
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Greetings everyone...

Well, it looks like the old Tek ceramic strips aren't the choice for "new" design BA equipment, at least not for B+ service. Even though the evidence seems to suggest this isn't a common failure mode, I'm not much of a risk taker. It is kind of a shame - I've got a topology nearly drawn up for an audio amp using them, and about 20 of the units pulled from a parts donor 545A. Oh well...

So, what is *the* choice of terminal strips these days? I've bought quite a few from Mouser, but they just don't compare well with the new old stock ones I've been kindly given - too flimsy, not sturdy, etc...

Thanks and 73,
Ben

Benjamin D. Hall, KD5BYB, Engine and radio collector / operator.
Located in Houston, Texas, USA.
e-mail: kd5byb@WT.net, web: ***down for refurbishment***
"An ye harm none, do what ye will."

Message-Id: <3.0.32.19981128222310.007bf990@mail.wt.net>

Date: Sat, 28 Nov 1998 22:23:13 -0600
To: Old Tube Radios <boatanchors@theporch.com>
From: "Benjamin D. Hall" <kd5byb@WT.NET>
Subject: plug needed
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Greetings all...

The RME-45b that I've been jawing about is awaiting only finishing touches before I fire her up. (specifically power resistors that are in the field coil substitution circuitry) While I wait for those, one thing I need but don't have a source for is a 5 pin plug for the speaker. This has the same pin size/form factor as the 27, 37, 56, 76 etc series of tubes... Anyone have one?

If not, I'll probably swap it for an octal socket - have plenty of octal bases from dead tubes...

Thanks and 73,
Ben

Benjamin D. Hall, KD5BYB, Engine and radio collector / operator.
Located in Houston, Texas, USA.
e-mail: kd5byb@WT.net, web: ***down for refurbishment***
"An ye harm none, do what ye will."

Date: Sat, 28 Nov 1998 23:46:08 -0500
From: "ROBERT W. DOWNS" <RWDowns_WA5CAB@compuserve.com>
Subject: RE: BC-611 Nameplate
To: Old Tube Radios <boatanchors@theporch.com>
Message-ID: <199811282346_MC2-61CD-2151@compuserve.com>
MIME-Version: 1.0
Content-Transfer-Encoding: quoted-printable
Content-Type: text/plain; charset=ISO-8859-1
Content-Disposition: inline

Hans, Marty & Group,

BC-611's were made by two manufacturers, Galvin, and Electrical Research Laboratories. ERL was a Galvin subsidiary. Galvin, of course, became Motorola. LSD is Louisville Signal Depot. The L.S.D. tag is an overhaul=

tag. Upon receipt of radios (and not just BC-611's) for overhaul, L.S.D.=

stripped them to the major components. For the BC-611, this meant that everything was taken apart except the chassis. No effort was made to kee=

p
track of what part came from what radio. Upon reassembly, the sets were usually given new nameplates and serial numbers. The old plates were apparently used as raw material to make the new plates, as I have several plates with the back side having info on it but appearing bleached out.

Some effort appears to have been made to keep the model letters straight, as there were some significant differences between models. The "F" has a terminal strip for components and a wide PTT switch with a different contact arrangement, and a single compression trimmer. The "E" and earlier have component cups around four of the tube sockets, and a double compression trimmer assembly. The tube complement is the same. The early "F" had the same thin bottom cover as the "E" and earlier. Late "F" had a thick bottom cover with a microphone and earphone jack in the side, similar to those on the BC-721, CH-312, and MC-619 (homing adaptor) equipped sets. =

The "F" also originally had double slug tuned IF transformers, but these apparently had a poor service history, as we have found many with open windings, and many of the sets which came back from the various NATO allies had the earlier first IF's (dual trimmer) installed in either position (the early second IF had a single trimmer and had some of the detector and AGC components inside).

Galvin also made blank nameplates for some reason, mostly in aluminum. =

Several years ago, I came across some of these, and had repro's made. I have these available if anyone needs a new nameplate.

The BA-37 "A" battery (actually a cell, for sticklers like me) was phased out in 1943 by the FT-501 adaptor because the BA-37 tended to outlast the BA-38 "B" battery, leading to premature changing of the BA-37 or dead sets.

The FT-501 holds two BA-30 D-cells connected in parallel. =

The ceramic antenna insulator in the case top cover was replaced in 1943 with a polystyrene unit. This was during "C" production. At around the same time, a polystyrene antenna support was added to the top of the chassis to reduce antenna and guide tube breakage when the chassis was removed from the case. The antenna cap or cover was also changed around this time from the deep drawn flat top unit to the cast round top unit which is almost the only one that survived the war. However, some of the

drawings and photographs in the May, 1945 manual still show the flat top cap.

The earphone and microphone units are the same except for the transformer and lead length. The "A" had ceramic units rather than dynamic, but I've never actually seen an "A". There were several different earphones and microphones, with and without blast shields, but I don't have concrete evidence as to which were earlier. I've always assumed that the ones with the blast shields were probably later.

I think that I've covered all of the obvious model differences. You should be able to make a stab at identification of the set that you have, at least "F" or .NOT. "F". BTW, \$35.00 is probably half the average flea market price here ten years ago, so if you got most of the main components, you got a good deal.

73,
Robert Downs
WA5CAB
Houston. TX

Message-Id: <199811290502.XAA08173@sco.theporch.com>
Date: Sun, 29 Nov 1998 00:06:15 -0500
To: Old Tube Radios <boatanchors@theporch.com>
From: Glenn Finerman <glennfin@mjet.com>
Subject: Collins For Sale
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

I forgot to mention....Jpeg photo's available on all the Collins gear I have advertised.

73.....Glenn Finerman K2KL

glennfin@mjet.com

Message-Id: <3.0.5.32.19981129000509.00cf94d0@postoffice.worldnet.att.net>
Date: Sun, 29 Nov 1998 00:05:09 -0500
To: Old Tube Radios <boatanchors@theporch.com>
From: Ed Tanton <n4xy@att.net>
Subject: Re: Tek terminal strips & alternatives
Cc: Old Tube Radios <boatanchors@theporch.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Hi Ben... how many of the 20 aren't really > 75 VDC? I FULLY agree and understand about the risk-taking part of this. That was EXACTLY the point I was trying to make-but... that said... keep in mind that I saw such formations on probably no more than 10 to 20% of the scopes that came through my bench... and only one or two that were complete shorts... not counting the REAL HV stuff. I would say that if you made an effort to clean them just once a year even, with a solvent like acetone, it is utterly a non-problem (again, not counting 1kv and up.) They are beautiful pieces of hardware, and I'd hate to see you change your plans-if you're willing to do the maintenance!

If, however, you prefer other strips, the kind used in many MIL rcvrs/etc. consisting of a bakelight strip with lugs, and a metal strip underneath, flattened on the ends with mounting holes, is very good. If you could use the ~5 lug kind, I'd be happy to supplement your ceramic strips. I THINK I also have some with 8 or so, but not a lot.

The BEST kind of strips are those made of fiberglass, with swaged lugs and a second piece of thin fiberglass glued to the bottom for insulation or holes for mounting above the chassis. I CAN have such lugs, and can swage my own, but it is a LOT of trouble, and I would only do it if I REALLY wanted something to look *** GOOD ***. These are sometimes found in MIL gear, often 2 inches wide, with components mounted across facing terminals. Easily removed and reused. I have some of those probably 2 in x 5 in... but they do have silk-screened component numbers on them.

I would be happy to help you out with your project. Just let me know what your thoughts are.

73

Ed Tanton N4XY

EMAIL: n4xy@msn.com

189 Pioneer Trail
Marietta, GA 30068-3466

TEL: (770)579-3933 V/MBX/FAX

INTERESTS: CW (99.5%) *QRP *BoatAnchors *Test Equipment *Photography
*Mercury Paddle #0214 *Hensley Paddle #002 *1919 Vibroplex Blue Racer

"Think you can, think you can't: either way you're right!" Henry Ford

Message-Id: <199811290546.XAA03708@loki.internettport.net>
From: "Steve" <scb@mail.internettport.net>
To: Old Tube Radios <boatanchors@theporch.com>
Date: Sat, 28 Nov 1998 23:34:15 +0000
MIME-Version: 1.0
Content-type: text/plain; charset=US-ASCII
Content-transfer-encoding: 7BIT
Subject: Re: Tektronix terminal strips
CC: "Old Tube Radios" <boatanchors@theporch.com>

> (1)-----, surface leakage that was troublesome
>for high impedance circuits and (2), formation of "copper dendrites",
>nearly invisible to the naked eye strands of copper that "grew" between
>adjacent copper traces. Although tiny by comparison to ordinary conductors
>the copper dendrites were robust enough to carry sufficient current to
>produce short circuit failures in the boards.

Arden & Group;

I have seen this dendrite "whiskering" on certain plated items in
radios, including tuning condensers. Is this also possibly a failure
mode in fixed capacitors, notably older mica sandwich types?
Seems related more to aging than stress, some of these fail under low
voltage.

-Steve

Date: Sun, 29 Nov 1998 01:52:36 -0600 (CST)
From: Bill Hawkins <bill@iaxs.net>
Message-Id: <199811290752.BAA24449@citrus.iaxs.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Tektronix terminal strips

Seems to me that dendrite formation occurs in crystalline materials.
So any conductive crystalline material could grow dendrites in an
electric field.

Tin is crystalline. Bend a bar of it and you can hear the crystals breaking. Tin is a componenet of solder. Why is it just silver that causes trouble?

Any metallurgists out there?

Regards,
Bill Hawkins

Date: Sun, 29 Nov 1998 07:59:11 -0500
From: polepeeg@aaa4rm.ba-watch.org (Marty's Refl. Drop)
Message-Id: <199811291259.HAA03846@aaa4rm.ba-watch.org>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Tek strips / Ag migration

Silver migration is epidemic in mini 455 IFs built in 40s & 50s. Trade name by Miller was "K-trans," I think.

Had padder cap.s made fm spring pressure plates in terminal base for cap compression. Neat - saved order fm the likes of Micamold, etc.

You can take 'em apart & see the result easily. I don't believe there was any voltage diff. across cap to speak of. Only delta-v across windings because cap.s didn't go to ground. Silver went around mica just to meet it's kindred molecues on the other side of the mica insulator.

Whatta puzzlement (yul brynnner)

M

Message-Id: <v03102807b286e67be31b@[134.53.65.12]>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Date: Sun, 29 Nov 1998 08:25:54 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Jim Garland W8ZR <4CX250B@miavx1.acs.muohio.edu>
Subject: Re: Tektronix terminal strips

>Well, it looks like the old Tek ceramic strips aren't the choice for "new"
>design BA equipment, at least not for B+ service. Even though the evidence
>seems to suggest this isn't a common failure mode, I'm not much of a risk
>taker.
>Thanks and 73,
>Ben

Hi Ben,

I wouldn't give up on the Tektronix terminal strips. Keep in mind that Tek built thousands of oscilloscopes using them, the vast majority of which still work fine after several decades. The silver migration problem is a very rare failure mode, and easily designed around. The "fix" is simply to keep any terminals having a large DC voltage (above a hundred volts or so) away from an adjacent ground terminal. Also, you can use one of the larger strips for high DC potentials, since these have wider spacing between terminals, thus reducing the electric field between terminals. I personally think it's an unnecessary precaution to clean the ceramic every year or so, although obviously it won't hurt. I'd just make sure the ceramic is cleaned and defluxed after the terminals are soldered to.

A couple of years ago, I acquired more than a hundred of the ceramic strips from Stan, W7NI, who scavanged them off of junked scopes. I've got all sizes and styles of the strips. I've inspected all of them and found NO terminals on any of them that showed any signs of silver migration. The Tek strips will dress up any project. If you were to buy them new (which you can't), I'd guess they'd cost \$20 apiece. They represent a rare engineering philosophy in which esthetic considerations prevail over financial considerations. The other example that comes to mind is the beautiful printed circuit boards manufactured by Hewlett Packard in the seventies for all their test instruments. The entire board pattern is gold-plated --an esthetic (but unnecessary) decision made by people who wanted their products to look good as well as work good.

73,

Jim Garland W8ZR

Date: Sun, 29 Nov 1998 08:23:31 -0500
From: polepeeg@aaa4rm.ba-watch.org (Marty's Refl. Drop)
Message-Id: <199811291323.IAA03874@aaa4rm.ba-watch.org>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Nat'l FB-7 RX - AWA '29 TX test

Phil I just spent an hour using mine & staring at that front chart which only has curves for 160, 80, 40, & 20. Maybe Nat'l never made 10M coils.

Seems 28mcs'd be stretching the 24A local Osc. & 57 mixer.

& speaking of the 24A osc., mine started the morning with garish notes. And it was garish on garish since intended use was AWA '29 TX test aka W2ICE memorial.

Found a mfg. bug probably every FB-7 using-owner knows. Grid leak bypass (.0001 mfd) for 24A is riveted to term./ strip behind osc. coil 'well.' Mine was loose. Found no leakage R so simply soldered her up tight. Signals now clean.

Worked several stations with it & the Browning preselector to which it's married (much needed to suppress birdies).

TX is dual 210 Hartley throttled back to 10W in.

Marty

- - - - - AWA event data - - - - -

Oh yes, the '29 TX test is mostly self-excited Hartleys, TNTs, etc. of the 1929 style running $\leq 10W$. Noted quite a few MOPAs this time tho. They sound pretty contemporary.

Test hrs are 11/28 2300g - 11/29 2300g. Same for 12/6 & 7. 3560-3580kcs.

You just have to listen around 3560-70 to believe. And if in East, there'll be more activity ~4:30p today.

But gotta be AWA. If interested write & I'll tell you to call Joyce Pekham in Breesport, NY.

Durn, in the time spent typing, I coulda made 3 more contacts if the band was still open. Operating these HB stns vs. typing is like the difference between watching movies &... well you know what I mean.

Date: Sun, 29 Nov 1998 08:45:12 -0500
From: Mike Warren <m_warren@compuserve.com>
Subject: BOATANCHORS digest 2322
To: Old Tube Radios <boatanchors@theporch.com>
Cc: Old Tube Radios <boatanchors@theporch.com>
Message-ID: <199811290845_MC2-61D6-FBCE@compuserve.com>
MIME-Version: 1.0
Content-Transfer-Encoding: quoted-printable
Content-Type: text/plain; charset=ISO-8859-1
Content-Disposition: inline

Hi Jim,

Z-50 =3D 7.0 uh
Z-144 =3D 1.8 uh

from 1958 "Radio Master"

=

>From: Jim Garland W8ZR <4CX250B@miavx1.acs.muohio.edu>
Subject: Inductance of Ohmite Z-50 and Z-144 chokes?

Hi Gang,

The Ohmite Z-50 and Z-144 RF chokes have been used for half a century in homebrew projects. Anybody know what their inductance is? Thanks,

Jim W8ZR<

Mike Warren
W5MAZ (in MN)

Message-ID: <005601be1bbb\$07675780\$e11abfd1@n4fs>
From: "Mike B. Feher" <n4fs@monmouth.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Nat'l FB-7 RX - AWA '29 TX test
Date: Sun, 29 Nov 1998 09:09:28 -0800
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Wrong! There are 10 meter coils for the FB series receivers. Actually there are 12 different sets as I have all 12 and probably duplicates of each. I now have only 5 FB series receivers left and one of them has a built in power supply. If any of you has heard of one similar I would appreciate any information. 73 - Mike

Mike B. Feher, N4FS
89 Arnold Blvd.
Howell, NJ, 07731
732-901-9193

Maybe Nat'l never made 10M coils.

Date: Sun, 29 Nov 1998 09:22:40 -0600 (CST)
From: Bill Hawkins <bill@iaxs.net>
Message-Id: <199811291522.JAA24844@citrus.iaxs.net>

To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Tektronix terminal strips

Now I'm wondering if the reason all silver doesn't migrate is because it isn't all crystalline. The only time I've seen crystals in a solder joint is when it was cold soldered. And a stick of solder doesn't make crincly sounds the way a bar of tin will.

Could it be that simple? Just heat the joint enough to make the metal flow like a liquid and then cool quickly and you won't have migration. Can't do anything about the way it was applied to silver micas or IF can padders, though.

Regards,
Bill Hawkins

Message-Id: <199811291559.HAA26976@mail-gw5.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Tektronix terminal strips
Date: Sun, 29 Nov 1998 07:59:43 -0800
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Hello Bill;

> Seems to me that dendrite formation occurs in crystalline materials.
> So any conductive crystalline material could grow dendrites in an
> electric field.
>
> Tin is crystalline. Bend a bar of it and you can hear the crystals
> breaking. Tin is a componenet of solder. Why is it just silver that
> causes trouble?

Quartz is a crystal also but it makes a good insulator. "Crystalline" structures in elements and compounds are everywhere you choose to look. Salt crystals are the trouble makers in electronics. Add a little water and you have your ionic medium for moving metallic ions. Salts are produced when elements, metallic and non-metallic react. Ever seen a metal in electronic equipment that has NOT oxidized or corroded (other than gold or platinum, noble metals) that wasn't enclosed in a vacuum or inert gas? It's just high school chemistry. BTW, dendrites are not always crytaline; "dendrite" refers to tree-like branching structures.

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Message-Id: <199811291559.HAA26973@mail-gw5.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Tektronix terminal strips
Date: Sun, 29 Nov 1998 07:45:59 -0800
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Steve queries:

> I have seen this dendrite "whiskering" on certain plated items in
> radios, including tuning condensers. Is this also possibly a failure
> mode in fixed capacitors, notably older mica sandwich types?
> Seems related more to aging than stress, some of these fail under low
> voltage.

I have taken apart (a long time ago) noisy/leaky mica caps and they exhibited signs of internal corrosion but I did not do a microscopic examination. It was obvious that they weren't "right". In a general sense you can expect problems wherever corrosion is evident but problems can exist even in pristine looking BA's. It's just a matter of discovering what and where the problems are.

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Message-Id: <199811291625.IAA00764@mail-gw5.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Tektronix terminal strips
Date: Sun, 29 Nov 1998 08:25:56 -0800
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Hi again Bill;

> Now I'm wondering if the reason all silver doesn't migrate is because it
> isn't all crystalline. The only time I've seen crystals in a solder joint
> is when it was cold soldered. And a stick of solder doesn't make crincly
> sounds the way a bar of tin will.

All metals are crystalline, regardless of how they cool, although cooling will affect crystal shapes, etc. The "crincly" sound you get from bending tin is not from crystals breaking apart, it has more to do with the grain in the metal, I believe.

> Could it be that simple? Just heat the joint enough to make the metal
> flow like a liquid and then cool quickly and you won't have migration.
> Can't do anything about the way it was applied to silver micas or IF
> can padders, though.

A smooth, shiny surface on solder is more evidence of lack of oxidation than crystal formation. Fresh solder is shiny because molten flux protected the solder from oxygen in the air thus delaying the formation of tin and lead oxides until the flux was all oxidized. Reheating a joint has no logical consequence for the "migration" problem that I know of.

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Message-Id: <199811291625.IAA00758@mail-gw5.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Tek strips / Ag migration
Date: Sun, 29 Nov 1998 08:05:53 -0800
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

> Silver migration is epidemic in mini 455 IFs built in 40s & 50s. Trade
name
> by Miller was "K-trans," I think.

Yup, K-Trans are real junk. I've had to remove the micas and plates from more than a few of those cans and wire dipped micas to the terminals. 455's usually take 100 pF. You can play with the transformer coupling coefficient somewhat by varying the value of the caps.

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

End of BOATANCHORS Digest 2323
